Title (en)

METHOD AND SYSTEM FOR DETERMINING THE MECHANICAL RESPONSE OF A COMPONENT

Title (de)

VERFAHREN UND SYSTEM ZUR BESTIMMUNG DER MECHANISCHEN REAKTION EINES BAUTEILS

Title (fr)

PROCÉDÉ ET SYSTÈME POUR DÉTERMINER LA RÉPONSE MÉCANIQUE D'UN COMPOSANT

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Application

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Abstract (en)

The present invention relates to a computer-implemented method for determining a distribution of a fatigue indicator parameter (FIP(p,t)) of a component after applying a load characteristics, comprising the steps of:- Simulating (S2) the microstructural response using a macroscale simulation applying a finite element method in consecutive time steps, wherein the microstructural response is obtained in a recurrent process of concurrently determining deformation (ε(p,t)) and stress (σ(p,t)) for each integration point until macroscale simulation has converged to a balancing equilibrium;- For each iteration, each time step and each integration point, applying (S3) a trained recurrent neural network (12) based on a deformation (ε(p,t)) increment to obtain the stress (σ(p,t)) and fatigue indicator parameter (FIP(p,t)), wherein the fatigue indication parameter (FIP(p,t)) is derived from an internal state of the recurrent neural network (12).

IPC 8 full level

G06F 30/23 (2020.01); **G06F 30/27** (2020.01)

CPC (source: EP)

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Citation (search report)

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